Surely this is a very inadequate and even misleading statement of the matter. It is surely inconceivable that a portion of protoplasm should be affected in these diverse but most definitely diverse ways by the environment of earth and plant-tissues respectively. The radicle and plumule are formed (*e.g.* in the bean) while still surrounded by the tissues of the parent plant, but no radicle is formed in a growth by gemmation. Even if in all cases a radicle was formed, which radicle became largely developed under the stimulus of earth-environment, it would be difficult to understand why it should atrophy or metamorphose itself within those very plant-tissues under the influence of which it was itself first formed.

Again, as regards the Begonia leaf, if it is such germ-plasm as Prof. Weismann conceives of, which determines the development of such a leaf into a plant, what can be supposed to make it different from the germ-plasm of the seed? However complex may be the germ-plasm of Begonia, it must be a definite complexity. The germ-plasm cannot be simultaneously built up in two different ways. But a molecular arrangement which compels growth from a seed cannot possibly be the same as a molecular arrangement which compels growth from a leaf. The initial stages of the two processes are quite different.

Certainly the influence of the environment is sometimes very surprising; but these surprising results hardly, at least at first sight, seem to harmonize with Prof. Weismann's views. Thus the effect of the movements of the young of *Cynips*, newly hatched from an egg deposited in the tissues of a plant (p. 302), is to cause it to produce a gall—a result "advantageous to the larva but not to the plant." It causes "an active growth of cells" around the larva, much to that larva's advantage. Now surely it is too much to ask us to believe that the germ-plasm of the plant, in the first instance, before even, say, a single *Cynips* had visited it, had in the complex collocation of its molecules, an arrangement such as would compel the plant which was to grow from it, to grow these cells and form a gall as just mentioned.[1] However this may be, the production of the gall is certainly a curious effect of the action of the environment on an outgrowth from germ-plasm, conceived of as Prof. Weismann conceives of it.

But the question of the actual or possible influence of the environment suggests some further difficulties which can hardly fail to occur to any critical reader of what Prof. Weismann says concerning the inheritance of acquired characters. Although he absolutely denies that changes induced in the *soma* by the action of the environment, can be transmitted to a succeeding generation, he yet allows (p. 98) that the germ-plasm itself may be modified through the action of the environment on the *soma* increasing its nutrition, and such modifications, on his hypothesis, would be inherited. But if it is true, as stated, that oysters transported to the Mediterranean become rapidly modified, that the *Saturnia* imported to Switzerland from Texas become modified so as to transmit new characters in one generation, and that cats in Mombas, turkeys in India, and greyhounds in Mexico, have also been modified, their modifications being transmissible, it is very difficult to understand how such changed climatic conditions, or increased or diminished nutrition, could change the molecular structure of the germ-plasm in such a way as to compel the production in a second generation of modifications either so induced in the *soma* of the first, or of a nature appropriate to the conditions presented by a changed environment.

That the wild pansy does not change at once when planted in garden soil, and yet in the course of generations gains new characters which are propagated by seed, he explains (p. 433) by a modification of germ-plasm thus induced. But such an admission is enough to satisfy much of what is demanded by those who assert the inheritance of acquired characters. After all, such an inheritance must be due to the *soma*, since it is only through it that the germ-plasm can be modified.

If this effect on the germ-plasm itself is thus cumulative, may it not be partly due to a cumulative effect on the soma which transmits to the germ-plasm the actions which modify the latter? Can this be declared to be absolutely impossible? Anyhow, it is plain that effects of the environment on Polyplastides may be transmitted to succeeding generations. There are, however, still more striking phenomena amongst mammals which do not seem to accord with Prof. Weismann's theories. I refer to the production of offspring which resemble not their father, but the father of preceding offspring—as in the well-known case of Lord Zetland's brood mare, and the puppies of thoroughbred bitches which have once been coupled with a mongrel. How can the germ-plasm of the first father have been acquired by the offspring of a subsequent father? I have ventured to propose these questions, which must of course have occurred to many other naturalists, feeling sure that Prof. Weismann will be glad to have his attention drawn to a few points, a further explanation of which seems necessary for the acceptance of his most interesting hypotheses.

September 2. ST. GEORGE MIVART.

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[1] It would be very interesting to know how "natural selection" (to the action of which, as everybody knows, Prof. Weismann constantly appeals) could have caused this plant to perform actions which, if not self-sacrificing (and there must be some expenditure of energy), are at least so disinterested. No doubt the Professor has an hypothesis to produce, though he only says (p. 302) here that "it would be out of place to discuss here the question."

NOTES.

THE Medals of the Royal Society have this year been awarded as follows:—The Copley Medal to the Rev. Dr. Salmon, F.R.S., for his various papers on subjects of pure mathematics, and for the valuable mathematical treatises of which he is the author; a Royal Medal to Dr. W. H. Gaskell, F.R.S., for his researches in cardiac physiology, and his important discoveries in the anatomy and physiology of the sympathetic nervous system; a Royal Medal to Prof. Thorpe, F.R.S., for his researches on fluorine compounds, and his determination of the atomic weights of titanium and gold; and the Davy Medal to Dr. W. H. Perkin, F.R.S., for his researches on magnetic rotation in relation to chemical constitution. Intimation has been received at the offices of the Royal Society that the Queen approves the award of the Royal Medals.

WE regret to learn that another officer of the Geological Survey of India has fallen a victim to the Indian climate. Mr. E. J. Jones, who joined the Survey in 1883, died of dysentery at Darjiling on October 15, at the age of thirty. Mr. Jones was an Associate of the Royal School of Mines, and having also studied chemistry at Zürich and Würzburg, he was a valuable member of the Survey, to the publications of which he contributed several geological and chemical papers.

To add to the many obligations under which he has laid Cambridge University, Prof. Sidgwick has offered to give £1500 towards the completion of the new buildings urgently required for physiology, on condition that the work is undertaken forthwith. The Financial Board has accordingly recommended a scheme by which this can be effected. The alliance between mental science and physiology which this gift represents is a bright feature of Cambridge studies at present.

THE University of St. Andrews is to be congratulated on an extraordinary piece of good fortune. The sum of £100,000 has been bequeathed to it by Mr. David Berry, who died last September. Mr. Berry was a native of Cupar, Fife, and in 1836 went to Australia, where he ultimately inherited the estate of his brother, Dr. Alexander Berry. The latter had been a student of the St. Andrews University, and at the time of his death it was understood that he had left an unsigned will bequeathing a quarter of a million to his *alma mater*, but giving permission to his brother David to carry out the provisions as he might think proper. The legacy will not come into the possession of the University until 1894.

IN addition to the botanical appointments named last week, the following are announced from Russia:—Prof. Faraintzin having resigned his post of Professor of Botany in the University of St. Petersburg. Prof. Borodin has been appointed in his place. M. W. Palladin succeeds the late Prof. Pitra as Professor of Botanical Anatomy and Physiology in the University of Charkow; and is himself succeeded in the Botanical Chair in the Agricultural Academy at Nowo-Alexandria by M. Chmielewski. M. W. Rothert has been appointed Lecturer on Botanical Anatomy and Physiology at the University of Kasan.

IN the November number of the *Kew Bulletin* a curious correspondence is printed which illustrates very well the nature of some of the duties undertaken by the Kew officials. Towards the end of December 1876, Dr. Hooker received from the Colonial Office a letter inclosing a despatch in which the Governor of Labuan suggested that it might be well to promote in Labuan the cultivation of the African oil palm. A long correspondence followed, the result of which was that full and accurate information as to the palm oil industry was obtained from the Gold Coast, and transmitted to Labuan. Palm oil nuts were also obtained, and in due time planted in the fertile island of Daat, where no fewer than 700 healthy trees were soon raised. It recently occurred to Mr. Thiselton Dyer to make inquiry as to the later history of this interesting experiment. A despatch from the Acting Governor of Labuan to the Colonial Office, dated August 1, 1889, and forwarded to Kew, closes the correspondence. It is as follows:—"As reported in Mr. Treacher's despatch No. 72, of August, 26, 1878, it appears that 700 of these palms were raised in the island of Daat, and in due time produced nuts. No attempt, as far as I am aware, was ever made to manufacture any oil from the nuts, and last year the palms were all removed to make room for cocoa-nut trees. Daat, a dependency of this colony, is private property, and I venture to suggest that, should any further information be required by Mr. Thiselton Dyer, he should apply to the owner, Dr. Peter Leys, who is now in England, and who would no doubt be glad to supply it. The experiment, so far as I am in a position to judge, was a success."

THE authorities of the Royal Gardens, Kew, are always glad to aid any dependency of the Empire in introducing and establishing any new plant which promises to serve as the foundation of a new industry. The documents relating to the oil palm in Labuan show how much work may be involved in the carrying out even of a simple scheme of this nature, and how disappointing the results may be. "The enterprise," says the *Bulletin*, "is suggested; it is considered; a plan for carrying it out has to be matured; all the necessary incidental information has to be collected; and then the plan is carried into execution. Sometimes it fails the first time, and then a second attempt has to be made, and so on till success is secured. All that then remains is to wait for the result; and this, in any appreciable shape, will in most cases not be reached for years. But in the interval Governors and officials change. It may be, though it is not always so, that the ardour with which the experiment was launched evaporates with the individual whom it inspired. A new Colonial Government *régime* may regard with apathy and even hostility the work of its predecessor, and the whole enterprise may fail into oblivion till some chance inquiry on the same subject leads to the digging out of the file of papers containing its record from the Kew archives."

THE remaining contents of the *Kew Bulletin* relate to Phylloxera regulations at the Cape, Ramie or Rhea, and the collecting and preserving of fleshy Fungi.

THE Manchester Field Naturalists' Society has formed a special committee, with Mr. Leo Grindon, the President of the Society, as botanical referee, and Mr. C. J. Oglesby, as convener, for the purpose of determining which trees, shrubs, and flowers will succeed in the squares and streets of the city. The opinion prevails that, notwithstanding the unfavourable climatic conditions, several forest trees, climbers, and hardy plants would grow if special care were taken in planting and tending them. The planting of the quadrangle at Owens College, of the infirmary esplanade (in the centre of the town), and of several churchyards, has been attended with success.

THE following money-grants have been lately made by the Berlin Academy of Sciences:—£75 to Prof. Brieger, for continuation of his researches on the ptomaïnes; £60 to Dr. Krabbe, for investigation of the Cladoniaceæ of the Hartz; £30 to Dr. von Dankelmann, for utilization of meteorological observations at Finschhaven in New Guinea; £20 to Dr. Assmann, for measurements of air-temperature on the Säntis; £100 for publication of Prof. G. Finsch's work on Torpedineæ; £50 for publication of a memoir by Dr. Heiden, on the development of *Hydrophilus piceus;* £100 to Dr. Strehlmann, in Zanzibar, for prosecution of his faunistic researches in East Africa; £125 to Prof. Lepsius, of Darmstadt, for preparation of his geological map of Attica; £50 to Prof. Conwentz, for investigation of silicified wood in the island of Schonen; £75 to Dr. Fleischmann, of Erlangen, for researches in development; and the same to Dr. Zacharias (Silesia), for micro-faunistic studies.

THE first meeting of the one hundred and thirty-sixth session of the Society of Arts will be held on Wednesday, November 20, when the opening address will be delivered by the Duke of Abercorn, Chairman of the Council. Before Christmas there will be four ordinary meetings, in addition to the opening meeting. The following arrangements have been made:—November 27, Dr. J. Hall Gladstone, F.R.S., "Scientific and Technical Instruction in Elementary Schools"; December 4, Dr. Armand Ruffer, "Rabies and its Prevention"; December 11, Mr. H. Trueman Wood, "The Paris Exhibition"; December 18, Sir Robert Rawlinson, "London Sewage."

A NOVEL and interesting application of science to art may now be seen at the Arts and Crafts Exhibition, where Mrs. Watts Hughes shows specimens of what she calls "voice figures" (Catalogue, No. 723). These are practically Chladni's figures produced in a viscid medium. Semi-fluid paste is spread on an elastic membrane stretched over the mouth of a receiver. A single note "steadily and accurately sung" into the receiver throws the paste into waves and curves. The patterns formed are either photographed immediately after production, or are transferred as water-colour impressions while the membrane is still vibrating. Fanciful names, *e.g.* "wave, line, flower, tree, fern," are given to these; the effect, especially in transparencies, is very beautiful. Some of the forms would repay the study of physicists as well as of artists; the most interesting are perhaps the "daisy forms," in which we are told that "the number of petals increases as the pitch of the note which produces them rises." The apparatus employed is not exhibited, and the descriptive label is not very clear, but we understand that Mrs. Hughes would be most pleased to explain the matter to anyone scientifically interested in it: her address is 19 Barnsbury Park, N.

FOR determination of the air-temperature at great heights, the Berlin Society for Ballooning (we learn from *Humboldt*) is going to try a method of Herr Siegsfeld, who uses a thermometer, which, by closure of an electric circuit when certain temperatures are reached, gives a light-signal. Small balloons, each containing such a thermometer, will be sent up by night, and the light will affect photographically a so-called "photo-theodolite," while the height then attained will be indicated in a mechanical way. It is hoped that more exact formulæ for the decrease of temperature with height may thus be obtained.

THE rapid decrease in the number of kangaroos is beginning to attract the attention of scientific Societies in Australia. From the collective reports of the various stock inspectors it was estimated that in 1887 there were 1,881,510 kangaroos. In 1888 the number fell to 1,170,380, a decrease of 711,130. The chief obstacle to the adoption of measures for the effectual protection of the kangaroo is his vigorous appetite. One full-grown kangaroo eats as much grass as six sheep; and graziers—who as a class are not, it is to be feared, readily accessible to the influence of sentiment—find that the food eaten by this interesting animal might be more profitably utilized otherwise. In a communication on the subject, lately submitted to the Linnean Society of New South Wales, Mr. Trebeck suggested that the National Park might be used for the preservation not only of kangaroos but of very many members of the Australian fauna and flora.

AT the monthly meeting of the Royal Society of Tasmania on September 9, the President (His Excellency Sir Robert G. C. Hamilton) said he desired to bring before the Society a matter relating to the young salmon at the Salmon Ponds. These were the undoubted product of the ova brought out by Sir Thomas Brady, which had been stripped from the male and female fish and artificially fertilized, and the utmost care had been taken to keep them apart from any other fish bred in the ponds. He recently visited the ponds, accompanied by the Chairman of the Fisheries Board, the Secretary, and two of the members, when they carefully examined a number of the young salmon, among which they were surprised to find marked differences existing, not only in size, but in their characteristics. It has often been held that the *Salmonidæ* caught in Tasmanian waters cannot be true *Salmo salar* because so many of them have spots on the dorsal fin, and a tinge of yellow or orange on the adipose fin, but nearly half of the young salmon they examined, which had never left the ponds, had these characteristics. Again, many of them were almost "bull-headed" in appearance—another characteristic which is not supposed to distinguish the true *Salmo salar*. He would suggest to the Chairman of the Fisheries Board, whom he saw present, that the Secretary should be asked to make a formal report of the result of this visit, and to obtain some specimens of the young fish, which could be preserved in spirits, and perhaps sent to Sir Thomas Brady to be submitted for the consideration and opinion of naturalists at home.

AT the same meeting of the Tasmanian Royal Society, Mr. James Barnard read a remarkably interesting paper on the last living aboriginal of Tasmania. It has hitherto been generally believed that the aboriginal Tasmanians are extinct. Mr. Barnard, however, contends that there is still one survivor—Fanny Cochrane Smith, of Port Cygnet, the mother of six sons and five daughters, all of whom are living. She is now about fifty-five years of age. Fanny's claims to the honour of being a pure representative of the ancient race have been disputed, but Mr. Barnard makes out a good case in her favour. He himself remembers her as she was forty years ago, when there were still about thirty or forty natives at Oyster Cave; "and certainly at that time," he says, "I never heard a doubt expressed of her not being a true aboriginal."

THE Caucasus is a region of great interest in the study of prehistoric times, and a fresh impulse was lately given to its exploration, by Beyern's discovery of an extensive burial-ground south of Kura (in the district of the Anticaucasus). At the recent annual meeting of the German Anthropological Society, Dr. Virchow gave some account of this bed (which Beyern has named after General Repkin). The region is rich in ores, but bronze articles are absent; for, while copper is plentiful, there is no tin. On the other hand, various ornaments of pure antimony have been met with; also antimony buttons (or knobs), like those of Beni-Hassan in Egypt. The ground is largely of volcanic nature, and many articles of obsidian (chiefly knives and arrow-heads) have been found in the graves. One curious find was that of a skeleton having an arrow-head of obsidian in one of the leg-bones, partly overgrown by a callus. The metallic girdles in this burial-ground have figures of animals engraved on them; in the Koban ground, such figures are confined to the clasp, but this, in the Repkin ground, is wanting.

PROF. EDWIN J. HOUSTON contributes to the November number of the Journal of the Franklin Institute a short paper on a hail-storm at Philadelphia, October 1, 1889. After noting various points common to most hailstones, he refers to a characteristic which he had never before observed. "On some of the hailstones," he says, "though not in the majority of them, well-marked crystals of clear transparent ice projected from their outer surfaces for distances ranging from an eighth to a quarter of an inch. These crystals, as well as I could observe from the evanescent nature of the material, were hexagonal prisms with clearly-cut terminal facets. They resembled the projecting crystals that form so common a lining in geodic masses, in which they have formed by gradual crystallization from the mother-liquor. They differed, however, of course, in being on the outer surface of the spherules."

IN *Das Wetter* for October, Dr. W. J. van Bebber discusses a paper, by the late Prof. Loomis, on the rainfall of the earth. The following are noted as some of the conditions favourable to rain: (1) an unsettled state of the atmosphere, caused by unusually high temperature, with great humidity, a condition which occurs when the pressure is below the average value; (2) cold northerly or westerly winds on the west side of a depression, by which the winds on the east side receive a stronger impulse; (3) proximity to mountains, the ocean or large lakes; (4) deep depressions of small area and steep gradients. With regard to the rainfall which accompanies barometric depressions, it is found that in the United States, south of latitude 36° N., a rainfall of 2·5 inches occurs oftener on the east side than on the west side of a depression in the ratio of 2·6 : 1; on the eastern side of the Rocky Mountains, a rainfall of 9 inches occurs more frequently on the east than on the west of a barometric minimum, in the ratio of 6·2 : 1. In the North Atlantic Ocean, the ratios of large rain areas on the east and west sides of a depression are as 2·6 : 1; while in Europe a rainfall of 2·5 inches in twenty-four hours on the east and west sides of a depression occurs in the ratio of 2 : 1. The rainfall with a falling or rising barometer is also investigated.

WE have received the fifth and last part of vol. i. of M. Fabre's comprehensive "Traité Encyclopédique de Photographie" (Paris: Gauthier-Villars, 1889). The subject of lenses is considered in great detail, and the theory and use of diaphragms are fully gone into. The relation of the time of exposure to the subject and lens employed is also considered, and studios, dark rooms, and their various accessories are fully described and illustrated. From both the theoretical and practical point of view the work still bears out its original promise of becoming the most complete one on the subject.

A SECOND edition of Prof. Tait's "Light" (A. and C. Black) has been issued. The author says that in revising the work he has made use of various notes jotted down from time to time on his own copy, mainly as the result of questions asked, or of difficulties pointed out, by students who were reading the book with care. Suggestions of this kind he has found to be almost always of value, as they tend to make the book better suited to the wants of the class of readers for whom in particular it was designed.

PERSONS interested in ferneries and aquaria will find much to attract them in a little volume entitled "Ferneries and Aquaria: a Complete Guide to their Formation, Construction, and Management," by George Eggett, Sen. This is one of a series of "practical guide-books" issued by Messrs. Dean and Son.

THE third volume (new series) of the *Reliquary* (Bemrose and Sons) has been issued. It opens with an interesting illustrated article on two Assyro-Phœnician shields from Crete, by the Rev. Joseph Hirst. Mr. John Ward contributes three illustrated papers of scientific value—on Rains Cave, Longcliffe, Derbyshire; on relics of the Roman occupation, Little Chester, Derby; and on recent diggings at Harborough Rocks, Derbyshire.

MESSRS. DULAU AND CO. have sent us a "Catalogue of Zoological and Palæontological Works." It includes works on Reptilia and Amphibia, and on Pisces.

THE atomic weight of palladium has been redetermined by Dr. E. H. Keiser (*Amer. Chem. Journ.*). Among all the atomic weights at present adopted by chemists, that of palladium has been one of the most imperfectly determined, for the discrepancy between the results of the various previous investigations is most unsatisfactory. In 1826, Berzelius obtained the value 113·63 from a consideration of the proportion in which palladium combines with sulphur. Two years later, the same distinguished chemist derived a much lower value from analyses of potassium palladious chloride, $2KCl \cdot PdCl_2$; known quantities of this salt were heated in a current of hydrogen, and the residuary potassium chloride and reduced palladium weighed. Recalculated by Profs. Meyer and Seubert, utilizing all the refined corrections of the present day, these analyses yield the value 106·2—a number which is almost identical with the atomic weight obtained by Dr. Keiser. In 1847, however, Quintus Icilius also investigated the subject, and, from determinations of the loss in weight which potassium palladious chloride undergoes when heated in a current of hydrogen, obtained the value 111·88. No other determinations having since been attempted, and the number 112 or 113 being certainly too high from considerations of the position of palladium among the metals, the number 106·2 obtained from Berzelius's second analysis recalculated by Meyer and Seubert has been universally adopted. To place the subject out of all doubt, Dr. Keiser has re-examined it from a totally different standpoint. The double chlorides of palladium and the alkalies, such as $2KCl \cdot PdCl_2$ and $2NH_4Cl \cdot PdCl_2$, are found to be unsuitable for atomic weight determinations; they retain water of decrepitation with great tenacity, and, after drying, are too hygroscopic for accurate weighing. On the other hand, the yellow crystalline salt, palladammonium chloride, $Pd(NH_3)_2Cl_2$, is a much more suitable substance. It is eminently stable, can be obtained in a state of practically perfect purity, contains no water of crystallization, does not retain water after drying in a desiccator, and the dried salt is not hygroscopic. Weighed quantities of it contained in a platinum boat were introduced into a combustion tube and heated in a stream of pure hydrogen. The hydrogen was rapidly absorbed, changing the bright yellow colour into black, metallic palladium and ammonium chloride being formed. The absorption of hydrogen occurred so readily that it was only necessary to warm one end of the boat when the heat of the reaction was found sufficient to complete the reduction of the whole. $Pd(NH_3)_2Cl_2 + H_2 = Pd + 2NH_4Cl$. After raising the temperature so as to volatilize the ammonium chloride, the finely divided palladium adhered together in the form of a porous bar having the shape of the boat. It was allowed to cool before weighing until just below a red heat in the current of hydrogen so as to prevent oxidation, and afterwards the hydrogen was displaced by dry air to prevent its occlusion. Two series of determinations were made, the salt for the second series being prepared from the reduced palladium of the first. The mean of eleven experiments in the first series gave the number 106·352, and of eight in the second series 106·350. The maximum value obtained was 106·459, and the minimum 106·286. The mean result 106·35 practically confirms that obtained by recalculating the results of Berzelius's second analyses.

IN our note in these columns three weeks ago (vol. xl. p. 655), upon pinol, the new isomer of camphor, it was pointed out that the nitrosochloride of pinol forms with β-naphthylamine an interesting base, $C_{20}H_{24}N_2O_2$, isomeric with quinine. This base, however, is not the first isomer of quinine which has been prepared, for an artificially prepared base of the same empirical formula was described by Dr. Kohn, of University College, Liverpool, in the Journal of the Chemical Society for 1886, p. 500.

THE additions to the Zoological Society's Gardens during the past week include three Rhesus Monkeys (*Macacus rhesus* ♂ ♂ ♂) from India, presented respectively by Colonel Cuthbert Larking, Mr. James T. Wilson, and Mrs. Charles Sainsbury; a Hairy-rumped Agouti (*Dasyprocta prymnolopha*) from Guiana, presented by Mr. Henry E. Blandford; a Common Polecat (*Mustela putorius*) from Norfolk, presented by the Earl of Romney; a Northern Mocking Bird (*Mimus polyglottis*) from North America, presented by Miss E. Breton; two White Pelicans (*Pelecanus onocrotalus*), a Crested Pelican (*Pelecanus crispus*) from Roumania, a Common Boa (*Boa constrictor*), a Neck-marked Snake (*Geoptyas collaris*) from Panama, a Mocassin Snake (*Tropidonotus fasciatus*) from North America, deposited; two Common Siskins (*Chrysomitris spinus*), two Twites (*Linota flavirostris*), two Lesser Redpoles (*Linota rufescens*), four Snow Buntings (*Plectrophanes nivalis*), two Knots (*Tringa canutus*), a Bar-tailed Godwit (*Limosa lapponica*), British, a Rosy-billed Duck (*Metopiana peposaca* ♂) from South America, purchased.

OUR ASTRONOMICAL COLUMN.

OBJECTS FOR THE SPECTROSCOPE.

Sidereal Time at 10 p.m. at Greenwich, November 14 = 1h. 36m. 45s.

	Name.	Mag.	Colour.	R.A. 1890.	Decl. 1890.
				h. m. s.	° ′
(1)	G. C. 385	—	—	1 35 30	+50 50
	G. C. 386	—	—	1 36 29	+50 51·5
(2)	57 Ceti	6	Yellowish-red.	1 54 36	−21 16
(3)	ζ Ceti	3	Yellow.	1 45 32	−10 55
(4)	δ Cassiopeiæ	3	Bluish-white.	1 18 36	+59 40
(5)	7 Schj.	7·0	Reddish-yellow.	1 10 5	+25 11
(6)	R Pegasi	Var.	Red.	23 1 7	+ 9 57
(7)	V Tauri	Var.	Reddish.	4 45 50	+17 21

Remarks.

(1) This is one of Herschel's double nebulæ. Dr. Huggins notes that both components give a gaseous spectrum, but could only be certain of the presence of the chief nebula line near 500, although 495 was strongly suspected. He notes, also, that there